II) Please amend claims 1 to 27 as set forth below:

(Currently Amended) 1. A liquid crystal display (LCD) system implemented with a thermal control and management system ~~for a microdisplay~~ comprising:

a temperature sensor system disposed directly onboard of a silicon die of a LCD microdisplay device for directly measuring a temperature of said microdisplay device and generating a temperature measurement signal; ~~and~~

a microdisplay controller for controlling voltages of said microdisplay device and receiving said temperature signal for transmitting a digital signal to a system processor; and

~~a data processing means~~ said system processor having a color-specific-thermal-effect voltage database for receiving and processing said temperature measurement signal by employing said color-specific thermal-effect voltage database to generate a color specific temperature-dependent reference voltages to apply as switchable DC-balancing reference voltages for operating said microdisplay system by accounting for a thermal-effect of color balance whereby said color specific temperature dependent reference voltages are most suitable for said temperature measurement signal and also for said DC-balancing reference voltages.

(Currently Amended) 2. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said ~~data processing means~~ system processor for generating a color-specific temperature-dependent black state voltage and a white state voltage as said ~~temperature-dependent reference voltages~~ switchable DC-balancing black state and white state voltages for each color most suitable for said temperature measurement signal accounted for said thermal-effect of color balance.

(Currently Amended) 3. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said ~~data processing means~~ microdisplay controller further includes control register for loading and reading said temperature measurement signal as a digital word

(Currently Amended) 4. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said ~~data processing means~~ microdisplay controller further includes color-specific digital-to-analog converter (DAC) output circuits for outputting said color-specific temperature dependent reference voltages to apply as switchable color-specific DC-balancing reference voltages.

(Currently Amended) 5. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said ~~data processing means~~ system processor further ~~includes an interpolation means for~~ interpolating between two data in said color-specific-thermal-effect voltage database for generating said color-specific temperature dependent reference voltages to apply as switchable color-specific DC-balancing reference voltages.

(Currently Amended) 6. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said temperature sensor system further ~~includes a temperature senor embedded in said microdisplay~~ integrated as an integrated circuit chip for disposed directly onboard of a silicon die of said LCD microdisplay device.

(Currently Amended) 7. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said temperature sensor system further comprising a PTAT temperature ~~senor~~ sensor system and integrated as an IC chip for disposed directly onboard of a silicon die of said LCD microdisplay device.

(Currently Amended) 8. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said ~~data processing means~~ system processor further includes an additional cooling activating system to activate additional cooling for said LCD microdisplay device ~~according to~~ in response to said temperature measurement signal.

(Currently Amended) 9. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said ~~data processing means~~ system processor further ~~includes a means for~~ determining if said temperature measurement signal is within a ~~reasonable~~ predefined range.

(Currently Amended) 10. The ~~thermal control and management~~ LCD system of claim 1 wherein:

said ~~data processing means~~ system processor further ~~includes a means for~~ receiving and processing said temperature measurement signal to function as a part of a Peltier thermal control loop.

(Currently Amended) 11. The ~~thermal control and management~~ LCD system of claim 1 wherein:

~~a data processing means~~ said microdisplay controller generating ~~a~~ said color-specific temperature-dependent reference voltages to apply as said switchable DC-balancing reference voltages most suitable for said temperature measurement signal for operating said microdisplay system as a liquid crystal display (LCD) device of a normally white mode accounted for said thermal-effect of color balance.

(Currently Amended) 12. The ~~thermal control and management~~ LCD system of claim 1 wherein:

~~a data processing means~~ said microdisplay controller generating ~~a~~ said color-specific temperature-dependent reference voltages to apply as said switchable DC-balancing reference voltages most suitable for said temperature measurement signal for operating said microdisplay system as a liquid crystal display (LCD) device of a normally black mode accounted for said thermal-effect of color balance.

(Currently Amended) 13. The ~~thermal control and management~~ LCD system of claim 4 wherein:

said DAC ~~are~~ further comprising a resistor digital to analog ~~analogy~~ converter (RDAC).

(Currently Amended) 14. A liquid crystal display (LCD) ~~microdisplay~~ system comprising:

a thermal control and management system having a color-specific-thermal-effect voltage database for receiving and processing a microdisplay temperature measurement signal for said microdisplay system by employing said color-specific-thermal-effect voltage database to generate a color specific temperature-dependent reference voltages to apply as switchable color-specific DC-balancing reference voltages for inputting to multiplexer of a microdisplay controller for controlling a high and a low voltages switchable for a DC balancing of said LCD display system ~~operating said microdisplay system most suitable for said temperature measurement signal whereby a thermal-effect of color balance is accounted for by said thermal control and management system~~.

(Currently Amended) 15. The liquid crystal display (LCD) ~~microdisplay~~ system of claim 14 ~~wherein~~ further comprising:

a system processor ~~said thermal control and management system further includes a~~ ~~data processing means~~ for generating a color-specific temperature-dependent black state voltage and a white state voltage as ~~temperature-dependent reference voltages~~ switchable color-specific DC-balancing black state and white state voltages for operating said microdisplay system most suitable for said temperature measurement signal accounted for said thermal effect of color balance.

(Currently Amended) 16. The liquid crystal display (LCD) ~~microdisplay~~ system of claim 15 further comprising ~~wherein~~:

~~said~~ ~~data processing means~~ a microdisplay controller having a ~~further~~ ~~includes~~ control register for loading and reading said temperature measurement signal.

(Currently Amended) 17. The liquid crystal display (LCD) ~~microdisplay~~ system of claim 15 wherein:

said ~~data processing means~~ system processor further includes DAC output circuits for outputting said temperature dependent reference voltages.

(Currently Amended) 18. The liquid crystal display (LCD) ~~microdisplay~~ system of claim 15 wherein:

said ~~data processing means~~ system processor further ~~includes an interpolation means for~~ interpolating between two data in said database for generating said temperature dependent reference voltages

(Currently Amended) 19. The liquid crystal display (LCD) ~~microdisplay~~ system of claim 14 wherein ~~further comprising~~:

> said thermal management and control system further includes a temperature sensor system integrated as an integrated circuit chip for disposed directly onboard of a silicon die of a LCD microdisplay device in said LCD system ~~having a temperature senor embedded in said microdisplay~~.

(Currently Amended) 20. A method for temperature control and compensation for a microdisplay system comprising:

> receiving and processing a microdisplay temperature measurement signal from said microdisplay system by employing a color-specific-thermal-effect voltage database to generate a color specific temperature-dependent reference voltages ~~for operating said microdisplay system most suitable for said temperature measurement signal~~; and
>
> applying said color-specific temperature-dependent reference voltage to a multiplexer as switchable color-specific DC-balancing reference voltages for controlling voltages of said microdisplay system in response to said temperature measurement signal whereby a thermal-effect of color balance is accounted for by said thermal control and management system

(Currently Amended) 21. The method of claim 20 further comprising:

> said step of generating said color specific temperature-dependent reference voltages further comprising a step of multiplexing and generating a color specific temperature-dependent black state voltage and a white state voltage to apply as said switchable color-specific DC-balancing reference voltages for operating said microdisplay system most suitable for said temperature measurement signal accounted for said thermal effect of color balance.

(Currently Amended) 22. The method of claim 20 wherein:

said step of receiving and processing said temperature measurement signal from said microdisplay system further includes a step of receiving said temperature measurement signal into a ~~data processing means~~ system processor having a control register for loading and reading said temperature measurement signal.

(Currently Amended) 23. The method of claim 20 wherein:

said step of generating said color-specific temperature-dependent reference voltages for operating said microdisplay system further comprising a step of outputting said color specific temperature-dependent reference voltages through DAC output circuits.

(Currently Amended) 24. The method of claim 20 wherein:

said step employing said color-specific-thermal-effect voltage database for generating said color specific temperature-dependent reference voltages further comprising a step of interpolating between two data in said color-specific-thermal-effect voltage database for generating said switchable color-specific DC-balancing ~~temperature dependent~~ reference voltages.

(Currently Amended) 25. The method of claim 20 further comprising:

~~employing~~ integrating a temperature sensor system as an IC chip for disposed directly onboard of a silicon die of said microdisplay system.

(Currently Amended) 26. The method of claim 20 wherein:

said step employing said color-specific-thermal-effect voltage database for generating said color specific temperature-dependent reference voltages further comprising a step of applying a curve-fitting algorithm using data in said color-specific-thermal-effect voltage database for generating said switchable color-specific DC-balancing ~~temperature dependent~~ reference voltages.

(Currently Amended) 27. A method for controlling and compensating temperature effects of a microdisplay system comprising:

measuring a microdisplay temperature, one for each color channel; and

preloading lookup tables having measured/predicted data for a display, to modify a liquid crystal voltage operating range by generating and applying two switchable color-specific DC-balancing voltages of said microdisplay for each color as required to achieve and maintain a proper white point operating point for said microdisplay.